NOTES AND NEWS.

THE APPENDIX of *Bulletin de l'Herbier Boissier* (Jan.) consists of a systematic conspectus of New Zealand Lichens, by Dr. J. Müller.

M. A. DE JACZEWSKI, in *Bull. l'Herb. Boiss.* (Feb.), reports the discovery of *Puccinia Peckiana* Howe in Switzerland, on Rubus saxatilis.

THOSE INTERESTED in the finer structure of the Desmideæ as applied to classification will find an important contribution to this subject on the pores of *Closterium* by Dr. J. Lütkemüller in the Œsterr. Botanische Zeitschrift 44: 11, 49. 1894.

IN THE February number of *Erythea*, Messrs. Ellis and Everhart describe twenty-nine new species of West American fungi; Mr. Davidson concludes his field-notes upon Calochortus; and Mr. Bioletti gives some interesting experiences in herbarium making.

NAWASCHIN has not only fully established the fact that the so-called "microspores" of Sphagnum described by Schimper are the spores of a fungus, *Tilletia Sphagni* Nawas., but has worked out the life history of the fungus. See Bull. de l' Acad. Imp. des Sci. St. Petersb. 13:394.

IN THE number of the *Journal de Botanique* for Jan. 16th M. Sauvageau continues his "biological notes" on the Potamogetons, P. crispus forming the subject of the present paper; and M. Bescherelle begins a series of descriptions of new mosses, the present fascicle being from Africa.

MR. A. P. MORGAN has continued his publication of the myxomycetes of the Miami Valley (Ohio) in Jour. Cin. Soc. Nat. Hist. 16: 127–156, presenting the two orders *Stemonitaceæ* and *Didymiaceæ*, and illustrating with two plates. Comatricha, Didymium, and Diderma each contains a new species.

MR. M. A. CARLETON, for several years assistant in the botanical department of the Agricultural College at Manhattan, Kansas, has recently been appointed an assistant in the Division of Vegetable Pathology at Washington, D. C. Mr. Carleton will have for his special work the rusts of cereals and other plants.

THE *Journal of Botany* (Feb.) contains an account, with plate, of the development of the stem and leaves of Physiotium giganteum (one of the liverworts with auricles or water-holding sacs), by Jesse Reeves, in which the development and structure of the auricle are described, and the stem found to grow by a two-sided apical cell.

THE PLANTS of Central Africa are being gradually brought to light and their geographical affinities made out. The latest results are those of Dr. J. W. Gregory, who gave an account of his exploration of Mount Kenia at the meeting on Jan. 15th of the Royal Geographical Society (London). He found on the higher elevations a mixed flora, having affinities with the European and Mediterranean floras on the one hand, and with the South African flora on the other.

In a paper on the spore-forming species of *Saccharomyces* (Amer. Naturalist, 27: 685. 1893) one species was not mentioned, namely, the ginger-beer plant, *S. pyriformis* Ward, Phil. Trans. 183: 125. 1892. This species is one which easily forms spores at 25° C. in 40–50h; spores are also readily formed in gelatin cultures. This yeast lives with different bacteria in mutualistic symbiosis.—Bay.

Scab (*Oospora scabies* Thax.) on beets reduces their commercial value, although apparently a surface injury, according to analyses made by H. A. Huston (Bulletin Ind. Exper. Station, 5: 37. 1894). These analyses showed a decrease in the sugar content from 14% in healthy beets to 12.8% in scabby beets in one variety, and from 13.6% to 12.7% in another. Of the beets grown upon the station farm at Lafayette, Ind., some varieties showed at harvest more than half of the beets affected more or less with scab, while none had less than 10% affected.

Baron Ferd. von Mueller has published, under the authority of the Secretary of Agriculture, Australia, an "Illustrated description of thistles, etc., included within the provision of the thistle act of 1890," Melbourne, 1893, pp. 1–20 and twelve plates. The latter show habit and detail figures of *Carduus lanceolatus* (Linn.), *C. arvensis* (Tabernæm.), *C. pycnocephalus* (Jacquin), *C. Marianus* (Linn.), *Onopordon acanthium* (Linn.), *Centaurea calcitrapa* (Linn.), *C. melitensis* (Linn.), *Kentrophyllum lanatum* (Necker), *Xanthium spinosum* (Linn.); which names will give nomenclaturists something to think of! The plates are lithographed and beautifully colored.—Bay.

Tschirch discusses[1] in a late paper the formation of resins and ethereal oils in plants, both from the chemical side and the anatomical. He finds in the epithelial cells of resin passages no trace of resins, so that these are not secreted as such by these cells, but only the resinogenous substances. The resins and oils are, in most cases, first recognizable in the thickened part of the wall of the epithelial cells next the canal. He also discusses the relation between the carbohydrates, phloroglucin, tannins and resins, of which there is a series which is possibly significant of the chemical origin of the resins.

In the *Journal of Botany* (Feb.) Mr. A. Gepp gives a biographical sketch of Richard Spruce, who died Dec. 28th of last year, at the age of seventy-six. From the first of his botanical career he was a special student of mosses and liverworts, and in the last years of his life he devoted himself entirely to the latter, his "Hepaticæ of the Amazon and Andes" probably being his most important contribution. His great service to botanical science consisted in the large collections made during his remarkable and extensive explorations in South America, which were conducted unremittingly from 1849 to 1861. After his return to England in 1864 his life was passed in retirement.

In the *Bull. Torr. Bot. Club* (Jan.) there appear several important papers dealing with our flora. Mrs. Britton presents the N. Am. species of Orthotrichum; Mr. Small begins a series of studies of our S. E. Flora, including in the present paper descriptions of a new

[1] Pringsh. Jahrb. f. wiss. Bot. **25**: 370. 1893.

Amorpha from Ga., and a new Hieracium from Tenn.; Mr. Heller notes twenty-three Virginian species new to the manual range, and describes a new Pentstemon from N. C.; Dr. Britton presents his eighth paper on new or noteworthy N. Am. phanerogams, giving, besides other notes, a synoptical and bibliographical list of the N. Am. species of Stenophyllus, and proposing a new genus, *Meehania*, for *Cedronella cordata* Benth.; Mr. Coville deals with the genus Hemicarpha in N. Am.; and Professor Scribner describes two new grasses.

ANY SUGGESTION that may throw light upon the origin of the higher carbohydrates in plants from carbonic acid is welcome. Bach proposes[1] a hypothesis which has some experimental evidence to support it. It is founded upon a possible analogy with the decomposition of sulphurous acid in sunlight, thus: $3H_2SO_3=2H_2SO_4+H_2O+S$. Similarly: $3H_2CO_3=2H_2CO_4+\boxed{H_2O+C}$. The H_2O+C is formic aldehyde and the H_2CO_4 is supposed to decompose further, thus: $2H_2CO_4=2CO_2+2H_2O_2=2CO_2+2H_2O+O_2$. The experiments show the formation of CH_2O and of H_2CO_4. The rest of the process is hypothetical.

MR. ROSCOE POUND has translated and published in the *American Naturalist* (Feb.) Saccardo's paper at the Genoa Congress on "The Number of Plants." A chronological table is given, running from Hippocrates (500–400 B. C.), who reckons 234 plants, to the estimate of Duchartre (1885), who reckons 125,000 species, of which 100,000 are Phanerogams. By putting together all the recent monographs Saccardo reaches the following result, up to 1892: phanerogams 105,231; ferns 2,819; other pteridophytes 565; mosses 4,609; liverworts 3,041; lichens 5,600; fungi 39,603; algæ 12,178; total 173,706. The author then estimates the probable increase in the total, resulting chiefly from the rapid increase in our knowledge of the fungi, and thinks that we will not go astray in estimating that the flora of the world, when it is completely known, will consist of at least 385,000 species of plants, that is, 250,000 fungi and 135,000 of all other groups. It does seem that those who are describing fungi are rapidly verifying this prediction.

THE BOTANICAL SEMINAR of Washington, D. C., was organized last year, and at present consists of the following members: E. F. Smith, F. V. Coville, B. T. Galloway, Theo. Holm, G. H. Hicks, M. B. Waite, A. F. Woods, D. G. Fairchild, W. T. Swingle, and M. A. Carleton. The Seminar has for its objects, (1) the social intercourse of members; (2) the advancement of botanical knowledge by the presentation of original and other papers, and the free discussion and criticism of the same. The Seminar meets twice a month, at the residences of the members, the meetings, presentation of papers, and discussions being wholly informal. Papers on the following subjects have been recently presented and discussed: Anisophylly in Liquidambar, Sassafras, Vitis, and other plants, Holm; The Hexenbesens of Washington and vicinity, Waite; Some physiological factors influencing the growth of plants in greenhouses, Galloway; Root development in certain plants

[1] Compt. rend. Acad. Sci. Paris **116:** 1145, and 1389. 1893.

of the great plains, Coville; The downward water current in plants, Smith.

IN THE *Bull. de l'Herb. Boiss.* for February M. John Briquet, who has in preparation a monograph of the Labiatæ, discusses certain questions of nomenclature, chiefly in the light of Dr. Otto Kuntze's recent publications. His purpose is to reply to criticisms and to submit certain matters for consideration by the next international congress. He first considers the question of *nomina nuda* and *nomina seminuda*, rejecting the latter division as useless. To him a name is either valid or not valid, and he would reject any generic name not accompanied by a generic description, considering reference to included species, or exsiccatæ unaccompanied by descriptions, as not sufficient. The second subject is the point of departure for generic nomenclature, in which he scouts the date 1753 on the ground that the Species Plantarum contains no generic descriptions, and insists upon 1737. With considerable elaboration and illustration the status of Rumphius and P. Browne is discussed as to whether they may be considered authors of genera in the Linnæan sense. The so-called genera of Rumphius are declared invalid, as the illustrations seem to abundantly indicate; while those of P. Browne are found to be perfectly logical. In reference to the "once a synonym always a synonym" rule of the Rochester code, M. Briquet shows that it was already in the Paris code, though not so explicitly stated and commonly disregarded, and that "tout le monde doit l'appliquer rétroactivement." A section on the place of pre-Linnæan writings in nomenclature simply raises the point that this question represents a great hiatus in the Paris code, which should be definitely filled up, either by a special article, or by an explanatory note. The author says that pre-Linnæan authors must always be read in order to understand Linæaus, but it is evidently his opinion that they should not enter into nomenclature. The author also considers the question of the nomenclature of subdivisions of species. He regards the genuine variety, which he tries to define, as the only thing worth receiving a name from systematists, all minor subdivisions not being matters of systematic attention, but "biologically" interesting. In conclusion, amendments to the Paris code, embodying the ideas previously set forth, are formally proposed. Among them it is interesting to note the following: That priority of names and of combinations of names shall start from the following dates: 1703 (Ray, *Methodus emendata*), for all the grand subdivisions of the plant kingdom, such as dicotyledons and monocotyledons; 1737 (Linnæus, *Genera*, Ed. 1), for genera and their subdivisions; 1753 (Linnæus, *Species*, Ed. 1), for species and their subdivisions; 1789 (Ant. L. de Jussieu, *Genera*), for families and their subdivisions. The author demands that the next congress, which should be called soon, shall consider amendments to the Paris code "l'une après l'autre," and not vote "en bloc" for a whole scheme, as desired by Dr. Kuntze; and that the propositions to be considered singly are those of J. Müller Arg. (1874), Alph. DC. (1883), O. Kuntze (1891 and 1893), those "en partie singulières" of the American Congress at Madison (1893), and those presented in the present paper. Altogether the paper is a valuable contribution to the already voluminous discussion of nomenclature.